

June 24, 2010

**ADDENDUM 4.0 TO THE QUALITY ASSURANCE SAMPLING PLAN
SOLID AND LIQUID WASTE SAMPLING
FOR THE
DEEPWATER HORIZON INCIDENT**

1. PROJECT OBJECTIVES

The objective of this addendum to the sampling plan is to provide confirmatory data on whether the waste collected as part of the BP Oil Spill has characteristics of hazardous waste for disposal purposes. This document describes the methods that will be used for the focused sampling and analysis of solid waste samples and should be used in conjunction with the BP Spill Quality Assurance Sampling Plan dated 31 May 2010.

SAMPLING APPROACH AND PROCEDURES

The sampling approach that will be applied to the waste sampling addendum is discussed in this section and consists of the following activities:

- Solid Waste Sampling
 - Oiled Debris (Sorbent Pads, Boom, PPE, Sand, etc.)
 - Oiled Vegetation
- Liquid Waste Sampling
 - Various Containers (Barges, Frac Tanks, etc)

Sampling methods, locations, quality assurance (QA) procedures, and the analytical approach and methods that will be used are discussed in the following sections.

1.1 SOLID AND LIQUID WASTE SAMPLING

The exact number of samples to be collected and from which locations will be decided by the EPA. The possible locations of sample collection include several Louisiana Branch Staging Areas (See Table 1-1). The samples will be collected following ERT SOP# 2017, Waste Pile Sampling and ERT SOP# 2009, Drum Sampling included as Attachment 1.

Solid waste samples will be collected as composite samples. Aliquots for compositing will be collected from waste containers (roll off boxes) at a rate of approximately 1 container per 10 waste containers at the staging area. A minimum of three containers per staging area will be sampled and composited. Bagged waste material will be removed

from each of the selected containers and the contents of the bags will be laid out on plastic sheeting. A representative aliquot of each type of waste material (oiled sorbent boom, oiled sorbent pads, oiled PPE, etc) will be collected. Waste material will be cut, using shears or scissors, into manageable pieces of approximately 1 to 2 square inches, or as small as practical in the field, then placed into a dedicated stainless steel or aluminum pan, thoroughly mixed, then transferred to an approved sample container. Further particle size reduction may be required at the laboratory. Sample material will be tightly packed inside sample containers.

Liquid waste samples will be collected from bulk containers (barges or frac tanks) using a drum thief sampler, Composite Liquid Waste Sampler (COLIWASA), or similar device. A separate sample will be collected for the oil and aqueous phases, as appropriate, and transferred to an approved sample container.

Samples will be submitted to the EPA Houston Laboratory for the following analyses:

- Toxicity Characteristic Leaching Procedure Volatiles (TCLP VOCs) by SW-846 Method 1311/8260B.
- TCLP Semivolatile Compounds (SVOCs) by SW-846 Method 1311/8270D.
- TCLP Resource Conservation and Recovery Act (RCRA) List Metals by SW-846 Method 1311/6010C and Method 1311/7470.
- Free Liquids by SW846 Method 9095B Paint Filter Liquids Test

1.1.1 Quality Assurance/Quality Control Samples

EPA contractors shall collect blind field duplicate samples of the solid and liquid waste samples and equipment rinsate blanks as needed during the sampling effort. Quality assurance/quality control (QA/QC) samples shall be collected according to the following:

- Blind field duplicate samples will be collected during sampling activities at locations selected by the EPA. The data obtained from these samples will be used to assist in the quality assurance of the sampling procedures and laboratory analytical data by allowing an evaluation of reproducibility of results. Blind field duplicate samples will be collected at the rate of one duplicate sample for every 10 samples collected if directed by the EPA.
- Equipment rinsate blanks will be prepared by pouring laboratory grade deionized water over nondisposable sampling equipment after it has been decontaminated and collecting the rinse water in sample containers for analyses. These samples will be prepared to demonstrate that the equipment decontamination procedures for the sampling equipment were performed effectively. The equipment rinsate blanks will be prepared each day that nondisposable sampling equipment is used. No equipment rinsate blanks are anticipated, as all sampling equipment will be dedicated and disposed after use.

- Temperature blanks shall be prepared in the field and shall consist of one 40-milliliter glass sample container with Teflon-lined septum cap. The temperature blank shall be packaged along with the field samples in the shipping cooler and will represent the temperature of the incoming cooler upon receipt at the laboratory. Use of these samples within a shipping container enables the laboratory to assess the temperature of the shipment without disturbing any of the field samples.

The EPA and EPA contractors will be responsible for QA/QC of the field investigation activities. Laboratories utilized during the field activities will be responsible for QA/QC related to the analytical procedures including the analysis of MS/MSD spike duplicates.

- Matrix spike/matrix spike duplicate (MS/MSD) samples shall be specified as part of laboratory requirements. Data obtained from these samples shall be used to assist in the quality assurance of the sampling procedures and laboratory analytical data by allowing an evaluation of reproducibility of results. Efforts shall be made to collect MS/MSD samples in locations where there is visual evidence of contamination or where contamination is suspected. The collection of MS/MSD samples shall be approved by the EPA.

All data will be validated and approved by EPA.

1.2 SAMPLE MANAGEMENT

Sample handling, nomenclature, container/equipment decontamination, custody, and shipping procedures are discussed in the following subsections.

1.2.1 Sample Handling Procedures

Water samples will be collected using equipment and procedures appropriate to the matrix, parameters, and sampling objectives. The volume of the sample collected will be sufficient to perform the analysis requested. Samples will be stored in the proper types of containers and preserved in a manner for the analysis to be performed per laboratory guidelines. Personnel responsible for sampling will change gloves between each sample collection/handling activity.

The sample containers will be handled using gloves appropriate for the hazards involved with handling of petroleum spill related samples (e.g., nitrile). The gloves serve two purposes, (1) personnel protection, and (2) prevention of sample cross-contamination. The gloves shall be replaced at a minimum between each sample collected or as frequently as needed.

Prior to shipping, a custody seal will be affixed to each individual sample container. Sample containers will be placed in sealable plastic bags and securely packed with bubble wrap or similar padding inside the cooler with ice.

1.2.2 Sample Nomenclature

Sample identification involves the assignment of sample location numbers and sample depth indicators to all samples collected during the sampling activity. The EPA will specify the sample location number and depth of the samples in the field. Sampling

personnel shall record this information using a permanent marker on a label applied to the side of the container.

For the purposes of the activity, each sample will receive an individual identification number consisting of a four-digit number (ex. GW01), the date (YYDDMM), type of sample (waste solid [WS]/waste liquid [WL]), a sequential number (001), and a QC code for the type of sample: normal (1), duplicate (2), or rinsate (3).

An example, Sample ID is: GW01-102406-WS-001-1. This number corresponds to a normal solid waste sample collected from location GW01 on 06-24-2010.

Blind field duplicate samples will be identified in the same manner as the sample locations and will also follow in sequential order. These samples will be given a unique sample number so as not to be obvious to the laboratory.

1.2.3 Sample Container and Equipment Decontamination

EPA and EPA contractors intend to utilize one-time use/dedicated equipment in order to avoid equipment decontamination during sample collection activities. However, if non-dedicated equipment is not available, each sample shall be collected with clean decontaminated equipment. If equipment reuse is necessary, decontamination will be required to prevent contamination of clean areas and cross-contamination of samples and to maintain the health and safety of field personnel. Decontamination of all sampling equipment will occur prior to sampling and between each sample location. Decontaminated sampling equipment and sample containers will be maintained in a clean, segregated area. Appropriate equipment decontamination procedures for field sampling equipment will be followed according to applicable EPA, ERT, and EPA contractors' SOPs.

Equipment decontamination will be completed in the following steps:

- Methanol rinse with soft scrub brush to remove initial oil residue
- Tap water and Alconox rinse with soft scrub brush
- Deionized water rinse, three times
- Methanol rinse

If necessary, decontamination fluids will be collected in appropriately sized U.S. Department of Transportation (DOT)-approved containers, characterized, properly labeled, and disposed in accordance with applicable laws and regulations.

Personnel decontamination procedures will be described in the site-specific HASP that will be prepared by EPA contractors and reviewed by the EPA prior to implementation of activities at the site.

1.2.4 Sample Preservation and Hold Times

EPA and EPA contractors will obtain and use precleaned sample containers for the solid waste samples collected during the sampling effort. The sample containers will be certified clean, and documentation of this will be required with each bottle lot.

Laboratory samples will be stored in coolers with ice until they are submitted for analysis.

EPA will request 7 day turnaround time for waste analytical results unless otherwise advised based on discussions with the laboratory. Turnaround time is initiated when the samples are received at the laboratory and continues until the analytical results are made available to EPA. EPA and EPA contractors will also ensure that the maximum hold time, initiated when the samples are collected in the field, and continues until the samples are analyzed, are not exceeded. Samples that have been analyzed will be disposed by the designated laboratory in accordance with the laboratory SOPs.

1.2.5 Sample custody

COC procedures will be initiated during sample collection. A separate COC record will be provided with each sample cooler. Each person who has custody of the samples will sign the form and ensure that the samples are not left unattended unless properly secured. Minimum documentation of sample handling and custody will include the following:

- Sample identification
- Sample collection date and time
- Any special notations on sample characteristics
- Initials of the person collecting the sample
- Date the sample was sent to the laboratory
- Shipping company and waybill information

Upon filling one cooler with samples and prior to transferring custody, the cooler will be affixed with a custody seal to prevent any tampering of the samples during transport. Any transfer of custody of the sample or cooler must be documented on the COC. The COC form will be signed by the person transferring custody of the samples. Each custody transfer will also include a copy of the COC for the field sampling team's files.

1.2.6 Sample Shipment

The samples will be preserved and packaged in coolers with ice according to appropriate sample packing guidelines. In general, the samples will be shipped via overnight carrier to the participating laboratories by either the United Parcel Service (UPS) or Federal Express (Fed Ex). The Department of Transportation (DOT) and International Air Transport Association (IATA) regulations governing environmental and hazardous sample packaging, labeling and sampling will be followed.

EPA and EPA contractor personnel will prepare and complete chain-of-custody forms using the Scribe Environmental Sampling Data Management System (SCRIBE) for all samples sent to the EPA laboratory. A separate COC record will be completed for each sample cooler that is prepared for shipment to the laboratory. The COCs shall be specific to the individual coolers. The record will repeat the information on each sample label and will serve as documentation of handling during shipment. COC forms will be filled out and the original signed COC forms will be inserted in a sealable plastic bag and placed

inside the cooler. A copy of this record will remain with the shipped samples at all times, and another copy will be retained by the member of the sampling team who originally relinquished the samples. The cooler lids will be securely taped shut, a custody seal applied, and then delivered to shipping company, courier, or directly to the analytical laboratories.

At the completion of the project, the data manager will export the SCRIBE COC documentation to the Analytical Service Tracking System (ANSETS) database. The COC procedures are documented and will be made available to all personnel involved with the sampling.

Table 1-1

Louisiana Branch Staging Areas

Terrebonne Houma 1597 Hwy 311 Schriever, La 70395
Plaquemine Venice 339 Coast Guard Rd Venice, LA 70091
St. Bernard Hopedale 7222 Hopedale Highway Hopedale, LA 70085
St. Tammany Slidell Area Hwy 90 @ LA/MS
Jefferson Grand Isle 103CaminadaLn Grand Isle, LA 70358
Terrebonne Cocodrie 106 Pier 56 CoCoMarina Chauvin, LA 70344
LaFourche Fourchon 570 Dudley Bernard Golden Meadow, LA 70357
St. Mary Franklin 8474 Hwy 317 Franklin, LA 70538
St. Mary Berwick 4212 Bellview Front Berwick, LA 70342
Terrebonne Dulac 9202 Grand Caillou Rd Dulac, LA 70353

2. ANALYTICAL APPROACH

Information regarding analytical methods and data validation procedures is discussed in the following sections.

2.1 ANALYTICAL METHODS

After samples are received by the laboratory, samples will be prepared and analyzed in accordance with the EPA SW-846 or appropriate methods.

Deliverables will include preliminary data via email in PDF format and an Electronic Data Deliverable (EDD) in the Microsoft Excel format.

2.1.1 Chemistry Analytical Methods

Information regarding analytical methods, sample containers, preservation and hold times is included in Table 2-1.

Table 2-1

Analytical Methods, Container, Preservation and Holding Times
BP Spill, Gulf Coast

Name	Analytical Methods	Matrix	Container	Preservation	Minimum Volume or Weight	Maximum Holding Time
TCLP VOCs	SW846 1311/8260B	Solid/Liquid Waste	Glass	4°C	1 - 32 oz clear/solid 2 - 1L Amber/liquid 1 – 1L Amber/oil	14 days solid 7 days liquid
TCLP SVOCs	SW846 1311/8270D	Solid/Liquid Waste	Glass	4°C	1 - 32 oz clear/solid 2 - 1L Amber/liquid 1 – 1L Amber/oil	7 days liquid and 14 days solid to extraction /40 days analysis
TCLP RCRA Metals	SW846 1311/6010C and SW846 1311/7470A	Solid/Liquid Waste	Glass	4°C	1 - 32 oz clear/solid 2 - 1L Amber/liquid 1 – 1L Amber/oil	28 days for mercury 180 days all other metals
Paint Filter Liquids	SW846 9095B	Solid/Liquid Waste	Glass	4°C	1 - 32 oz clear/solid 2 - 1L Amber/liquid 1 – 1L Amber/oil	Not Listed

EPA and EPA contractors will collect the solid waste samples will submit them to the EPA Houston Lab for analysis. Additional volume will be collected as required and as directed by EPA. The EPA Houston address is:

US EPA Houston Laboratory
10625 Fallstone Rd
Houston, Texas 77099
Attn: Ms Christy Warren (281)-983-2137

The remaining requirements of the QASP are still in effect.